

```

┆ ∀[T:Type]. ∀[P:T → ℙ]. ∀[C:ℙ].
| ((∃x:T. True) ⇒ ((∃x:T. (P x)) ∨ C) ⇒ (∃x:T. ((P x) ∨ C)))
|
BY RepeatFor 3 ((UD THENA Auto))
|
[1]. T: Type
[2]. P: T → ℙ
[3]. C: ℙ
┆ (∃x:T. True) ⇒ ((∃x:T. (P x)) ∨ C) ⇒ (∃x:T. ((P x) ∨ C))
|
BY RepeatFor 2 ((D 0 THENA Auto))
|
4. ∃x:T. True
5. (∃x:T. (P x)) ∨ C
┆ ∃x:T. ((P x) ∨ C)
|
BY D 5
| \
| 5. ∃x:T. (P x)
| ┆ ∃x:T. ((P x) ∨ C)
| |
1 BY D 5
| |
| 5. x: T
| 6. P x
| ┆ ∃x:T. ((P x) ∨ C)
| |
1 BY (InstConcl [x]). THENA Auto)
| |
| ┆ (P x) ∨ C
| |
1 BY (OrLeft THENA Auto)
| |
| ┆ P x
| |
1 BY NthHyp 6
| \
| 5. C
| ┆ ∃x:T. ((P x) ∨ C)
|
BY D 4
|
4. x: T
5. True
6. C
┆ ∃x:T. ((P x) ∨ C)
|
BY (InstConcl [x]). THENA Auto)
|
┆ (P x) ∨ C
|
BY (OrRight THENA Auto)
|
┆ C
|
BY NthHyp 6

```

Extract:

```
 $\lambda f, g. \text{ case } g \text{ of}$   
   $\text{inl}(e) \Rightarrow \text{let } x, p = e \text{ in } \langle x, \text{inl } p \rangle$   
   $| \text{inr}(c) \Rightarrow \text{let } x, \text{true} = f \text{ in } \langle x, \text{inr } c \rangle$   
  
where  $f : \exists x:T. True$   
       $g : (\exists x:T. (P x)) \vee C$   
       $e : (\exists x:T. (P x))$   
       $p : P x$   
       $c : C$ 
```